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10/512,407	10/25/2004	Masahiro Oshikiri	L9289.04162	4624

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EXAMINER	
SHAH, PARAS D	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/512,407	Applicant(s) OSHIKIRI, MASAHIRO	
	Examiner Paras Shah	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 25 October 2004.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-42 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-42 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 25 October 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :10/25/2004, 07/01/2005, 02/04/2006, and 07/1 8/2006.

DETAILED ACTION

1. This communication is in response to the application filed on 10/25/2004. Claims 1-42 are pending and have been examined.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

3. The reference to the foreign priority data should be changed to the beginning of the Specification.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 10/25/2004, 07/01/2005, 01/04/2006, and 07/18/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 5-7, 11, 18, 19, 22-24, 28, 41, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Jin *et al.*(JP 08-263096) -2693096).

As to claims 1 and 41, Jin *et al.* teaches a coding apparatus comprising:

a down-sampling section disclose (see [0015], down-sampling from sample rate converter 221) that lowers a sampling rate of an input signal (e.g. The down-sampling lowers the sampling rate of the signal.);

a base layer coding section (see [0015], 1st encoder 241) that encodes an input signal of which sampling rate is lowered and obtains first coding information (see [0015]) (e.g. The input into the 1st encoder is the down-sampled signal.);

a decoding section (see [0015], local decoder 251) that generates a decoded signal based on said first coding information (see [0015])(e.g. The local decoder decodes the signal from the encoder 241.);

an up-sampling section (see [0015], up-sampling from sample rate converter 261) that raises a sampling rate of said decoded signal to a rate identical to that of said input signal (see [0015]) (e.g. The sampling frequency is up-sampled on the decoded signal. The sampling frequency of the input and the up-sampler are the same at 24kHz.);

an enhancement layer coding section (see [0015], 2nd encoder 242) that uses a parameter generated in decoding processing of said decoding section,

encodes a difference value (see [0015], difference circuit 28) between said input signal and said decoded signal of which sampling rate is raised, and obtains second coding information (see [0015] and [0016]) (e.g. The values of the decoded signal for which the sampling rate was raised and the input signal are the parameters. A difference is computed and the second coding information is obtained.); and

a multiplexing section that multiplexes said first coding information and said second coding information (see [0016], multiplexing circuit 31).

As to claim 2, Jin *et al.* teaches wherein

said base layer coding section encodes an input signal using code excited linear prediction (see [0015]), CELP).

As to claim 5, Jin *et al.* teaches wherein

said enhancement layer coding section performs coding processing using the base layer LPC coefficients generated in decoding processing of said decoding section (see 0020], linear prediction coefficients and encoder 241) (e.g. The encoder 241 uses linear prediction coefficients of the input signal. Since the enhancement layer uses the signal from the output of the base layer that has been up-sampled, the LPC coefficients used in the base layer are used for the enhancement layer coding.).

As to claim 6, Jin *et al.* teaches wherein

said enhancement layer coding section converts the base layer LPC coefficients to the enhancement layer LPC coefficients (see [0020] and [0021]) based on a preset conversion table (e.g. There is a codebook present, adaptive sign book 36 and noise sign book 37.), calculates a spectral envelope based on the enhancement layer LPC coefficients, and uses said spectral envelope in at least one of spectrum normalization (see [0020]-[0022]) or vector quantization in coding processing (see [0021]) (e.g. A spectral envelope is obtained based on the LPC coefficients and performs spectral normalization through the acoustic-sense weighting section 47.).

As to claim 7, Jin *et al.* teaches

wherein said enhancement layer coding section performs coding processing (see [0021], conversion encoder 242) using a pitch period and pitch gain generated in decoding processing of said decoding section (see [0020], noise sign book 37 relates the pitch or period and adaptation sign book 36 defines the gain).

As to claim 11, Jin *et al.* teaches further comprising:

a subtraction section (see [0016], difference circuit 28) that obtains an error signal (see [0017], error signal 131) from a difference between an input signal at the time of input and a decoded signal of which sampling rate is raised

(see [0016], The difference signal is obtained from the difference between the input signal and the up-sampled decoded signal.); and

a frequency determination section (see [0017], frequency spectrum of the error signal is found by frequency spectrum) that determines the frequencies subject to coding of said error signal based on a decoded signal of which sampling rate is raised (see [0016]-[0017]) (e.g. The frequencies are determined of the error signal as noted in the cited section and drawing 5C.);

wherein said enhancement layer coding section encodes said error signal at said frequencies (see [0016]-[0017]) (e.g. The encoding is carried out by encoder 242 of the error signal.).

As to claims 18, 19, 22-24, 28, and 42 are rejected as reciting similar limitations as that cited above for the encoder. It is well known in the art that the decoder is a mirror image of the encoder. Further, the cited reference mentions the use of a decoder with all steps shown in the decoder claims (see [0022]-[0024], decryption).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 3, 4, 9, 10, 12-17, 20, 21, 26, 27, and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jin *et al.* in view of Kono (JP 08-046517).

As to claims 3 and 4, Jin *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Jin *et al.* teaches the encoding being done of the enhancement layer by a rectangular cosine conversion using a discrete cosine transform (see [0021], rectangular cosine transform for encoder 242).

However, Jin *et al.* does not specifically teach the encoding being done by orthogonal transformation using MDCT processing.

Kono does teach

said enhancement layer coding section (see [0032], coding network 54 encodes an input signal using orthogonal transformation using MDCT (see [0038] and [0041], MDCT circuit 13).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin *et al.* with the use of encoding using orthogonal transformation with MDCT processing as taught by Kono. The motivation to have combined the references involves the consideration of the auditory masking from the spectrum of data (see Kono, [0038]). Further, the encoding of the enhancement layer using MDCT is another method for encoding a signal as is well known in the art.

As to claim 9, Jin et al. teaches all of the limitations as in claim 1, above.

However, Jin *et al.* does not specifically teach the coding processing using power from the decoded signal.

Kono does teach the use of the power of the decoded signal for coding processing (see [0041], [0042], [0048]-[0051], and [0055]) (e.g. From the cited sections, coding processing is being performed from the signal and the energy for reach band is calculated based on the MDCT values. It would have been obvious to use the power instead of energy as power is related to energy.)

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin *et al.* with the power form the decoded signal for coding processing as taught by Kono. The motivation to have combined the references involves bit allocation being performed based on the energy determined (see Kono, [0050]).

As to claim 10, Jin *et al.* in view of Kono does teach all of the limitations as in claim 9, above.

Furthermore, Kono teaches wherein said enhancement layer coding section quantizes a fluctuation amount of power of MDCT coefficients based on power of a decoded signal (see [0052], bit allocation calculation circuit 805), and uses said quantized MDCT coefficient power fluctuation amount in power normalization in coding processing (see Kono, [0052]) (e.g. The bit allocation calculation circuit uses the spectrum data from the MDCT to requantize the data in order for bit allocation to be performed.).

As to claim 12, Jin *et al.* teaches all of the limitations as in claim 11, above.

Furthermore, Jin *et al.* teaches

an auditory masking section that calculates auditory masking (see [0020], acoustic sense weighting) and the encoding of the error spectrum (see [0022]) (e.g. The cited portions show the acoustic sense weighting calculating auditory masking based on the spectrum. The spectrum is normalized by the acoustic weighting and encoding is performed through the rectangular cosine conversion.).

However, Jin *et al.* does not specifically teach the indication of an amplitude value for auditory masking that indicates an amplitude value that is not made object of coding.

Kono does teach

the indication of an amplitude value for auditory masking (see [0059]) (e.g. The noise allowance level is compared to alpha in order to determine whether masking should take place.); and

wherein said enhancement layer coding section determines an object of coding so that a signal within said auditory masking is not made an object of coding in said frequency determination (see [0059]) (e.g. From the noise allowed, it is obvious that if the noise level falls within the allowed level then coding occurs and if not coding is not performed.) section and encodes an error spectrum that

is a spectrum of said error signal (see [0059-0066]) (e.g. The bark spectrum us computed and encoded,).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin *et al.* with the use of amplitude value and coding that is not part of the auditory masking as taught by Kono. The motivation to have combined the references involves bit allocation being performed based on the energy determined (see Kono, [0050]).

As to claim 13, Jin *et al.* in view of Kono teach all of the limitations as in claim 12, above.

Furthermore, Kono teaches

said auditory masking section (see [0052], acoustic-sense allowance noise level) comprises:

a frequency domain transformation section that transforms a decoded signal of which sampling rate is raised to frequency domain coefficients (see Kono [0052], MDCT) (e.g. ;

an estimated auditory masking calculation section that calculates estimated-auditory masking using said frequency domain coefficients (see Kono, [0055]-[0057], MDCT values are used); and

a determination section that finds a frequency at which an amplitude value of a spectrum of said decoded signal exceeds an amplitude value of said

estimated auditory masking (see Kono, [0059], noise level is compared to alpha for every critical band. The frequency determination is based on the band.); and

said enhancement layer coding section encodes said error spectrum located at said frequency (see Kono, [0064]-[0067], encoding of the spectrum is performed on a band basis.)

As to claim 14, Jin *et al.* in view of Kono teach all of the limitations as in claim 13, above.

Furthermore, Kono teaches

said auditory masking section comprises an estimated error spectrum calculation section that calculates an estimated error spectrum using said frequency domain coefficients (see Kono, [0051]-[0055], The bark spectrum is used for the determination of the acoustic sense allowance noise level for each critical band. Further, convolution processing is used for the multiplier value.); and

said determination section finds the frequencies at which an amplitude value of said estimated error spectrum exceeds an amplitude value of said estimated auditory masking (see Kono, [0068]-[0069], noise allowance level for each band is determined is compared to the actual noise using the value of alpha. (see [0057]-[0058],masking).

As to claim 15, Jin *et al.* in view of Kono teach all of the limitations as in claim 13, above.

Furthermore, Kono teaches

said auditory masking section comprises a correction section that smoothes estimated auditory masking calculated by said estimated auditory masking calculation section (see Kono [0072], smoothness calculation circuit 808); and

said determination section finds the frequencies at which an amplitude value of said decoded signal spectrum or said estimated error spectrum exceeds an amplitude value of smoothed said estimated auditory masking (see Kono, [0072], [0073], and [0068]).

As to claim 16. Jin *et al.* in view of Kono teach all of the limitations as in claim 13, above.

Furthermore, Jin et al. teaches

wherein said enhancement layer coding section (see Jin *et al.*, [0016], encoder 242)

Furthermore, Kono teaches

calculates for each frequency (see [0041], band division filter divides the signal into bands) an amplitude value difference between either an estimated error spectrum or error spectrum and either auditory masking or estimated auditory masking (see Kono, [0056], [0059]-[0065], noise allowance is

determined based on the noise level for that band and the actual noise that was determined from the Bark spectrum and computes an alpha value), and determines an amount of coding information based on the amount of said amplitude value difference (see [0066]) (e.g. From the spectrum an auditory masking values are determined and subtracted from the amplitude values depending on a threshold. Further, the result is implicitly used as coding information for bit allocation.)

As to claim 17, Jin *et al.* in view of Kono teach all of the limitations as in claim 13, above.

Furthermore, Jin et al. teaches

wherein said enhancement layer coding section encodes (see Jin *et al.*, [0016])

Furthermore, Kono teaches

Encoding said error spectrum in a predetermined band (see Kono, [0041], and [0055]) (e.g. encoding is performed for each band divided.) in addition to the frequencies found by said determination section masking (see Kono, [0072], [0073], and [0068])(e.g. From the acoustic sense weighting, a multiplier is multiplied to each band. Then, each band is encoded.)

As to claims 20, 21, 26, 27, and 29-34 are rejected as reciting similar limitations as that cited above for the encoder. It is well known in the art that the decoder is a

mirror image of the encoder. Further, the cited reference mentions the use of a decoder with all steps shown in the decoder claims (see Jin *et al.* [0022]-[0024], decryption) and (see Kono, [0086], decryption).

10. Claims 8 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jin *et al.* in view of Oshikiri *et al.* (US 5,819,213).

As to claim 8, Jin *et al*, does not specifically teach the calculation of a spectral fine structure using a pitch period and a pitch gain.

However, Oshikiri *et al.* does teach the calculation of a spectral fine structure using a pitch period (e.g., TW, in equation 3)and pitch gain (e.g. g, in equation 3) (see col. 9, equation, 3, and lines 12-14 and col. 8, lines 55-60)

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin *et al.* with the calculation of a spectral fine structure as taught by Oshikiri *et al.* The motivation to have combined the references involves the ability to calculate the audibility weights in order to reduce quantization noise (see col. 3, lines 26-42).

As to claim 25 are rejected as reciting similar limitations as that cited above for the encoder. It is well known in the art that the decoder is a mirror image of the encoder. Further, the cited reference mentions the use of a decoder with all steps shown in the decoder claims (see Jin *et al.* [0022]-[0024]) and see Figure 12).

11. Claims 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebara *et al.* (JP 2000-322097) in view of Jin *et al.*

As to claim 35, Ebara *et al.* teaches an acoustic signal transmitting apparatus comprising:

an acoustic input section that converts an acoustic signal to an electrical signal (see [0045], audio input unit 102);

an A/D conversion section that converts a signal output from said acoustic input section to a digital signal (see [0045], A/D converter 103);

an RF modulation section that modulates coding information output from said coding apparatus to a radio frequency signal (see [0045], RF modulator 105); and

a transmitting antenna that converts a signal output from said RF modulation section to a radio wave, and transmits that radio wave (see [0045], transmitting antenna 106).

However, Ebara *et al.* does not specifically teach the coding apparatus as claimed in claim 1.

Jin *et al.* does teach the coding apparatus as claim 1 (see [0015]-[0016]).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the acoustic signal transmitting apparatus taught by Ebara *et al.* with coding apparatus as taught by Jin *et al.* The motivation to have combined the references involves equipping the sound

transmitter with a type of voice coding and decoding equipment quality improvement (see Ebara *et al.,* [0044] and abstract).

As to claim 36, Ebara *et al.* an acoustic signal receiving apparatus comprising:

a receiving antenna that receives a radio wave (see [0046], receiving antenna 107) ;

an RF demodulation section that demodulates a signal received by said receiving antenna(see [0046], RF demodulator 108) ;

a D/A conversion section that converts a signal output from said decoding apparatus to an analog signal (see [0046], D/A converted 110); and

an acoustic output section that converts an electrical signal output from said D/A conversion section to an acoustic signal (see [0046], audio output device 111).

However, Ebara *et al.* does not specifically teach the coding apparatus as claimed in claim 18.

Jin *et al.* does teach the decoding apparatus as claim 18 (see [0015]-[0016]).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the acoustic signal receiving apparatus taught by Ebara *et al.* with coding apparatus as taught by Jin *et al.* The motivation to have combined the references involves equipping the sound

receiver with a type of voice coding and decoding equipment quality improvement (see Ebara *et al.,* [0044] and abstract).

As to claims 37 and 38, Ebara *et al.* in view of Jin *et al.* teach all of the limitations as in claim 35, above.

Furthermore, Ebara *et al.* teaches a communication terminal apparatus comprising the acoustic signal transmitting (receiving) apparatus according to claim 35 or 36 (see Ebara *et al.* [0045]-[0046]) (e.g. The setup is a communication terminal communication in order for transmission and receiving (see [0038]).).

As to claims 39 and 40, Ebara *et al.* in view of Jin *et al.* teach all of the limitations as in claim 35, above.

Furthermore, Ebara *et al.* a base station apparatus comprising the acoustic signal transmitting (receiving) apparatus according to claim 35 or 36 (see Ebara *et al.* [0045]-[0046]) (e.g. It is obvious to use a base station as a means for transmitting and receiving as would be apparent to one skilled in the transmission and receiving of information as is evident cellular telephony.).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tokuri *et al.* (JP 11-251917) is cited to a encoding and decoding by dividing the input signal into bands and also a hierarchical encoding section with two encoders.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paras Shah whose telephone number is (571)270-1650. The examiner can normally be reached on MON.-THURS. 7:30a.m.-4:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571)272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

P.S.

10/4/2007

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